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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,847	02/05/2004	Dennis M. O'Connor	42P15392	7172

8791 7590 02/26/2007  
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LOS ANGELES, CA 90025-1030

EXAMINER
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BATAILLE, PIERRE MICHE

ART UNIT	PAPER NUMBER
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2186

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/773,847

Applicant(s)

O'CONNOR, DENNIS M.

Examiner

Pierre-Michel Bataille

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. This Office Action is taken in response to Applicant's communication filed January 03, 2007 responding to Non-Final Rejection dated September 29, 2006. Applicant's amendments and/or arguments have been considered with the results that follow.
2. Claims 1-24 are pending the application under prosecution.

### ***Claim Rejections - 35 USC § 103***

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
  1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claim 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,754,784 (North et al) in view of US 2004/0117592 (Day et al).

With respect to claims 1, 11, and 17, North discloses circuits, system, and method for information privatization in personal electronic appliances such as handheld personal electronic appliances or portable digital audio player (Col. 1, Lines 24-43) comprising:

an antenna (**general principle of hand held devices, i.e. inherent in all above noted appliances**);

a memory (**flash card, Flash memory, SDRAM, TLB, write buffer, Fig. 1a, 1B**); and

a processor coupled to the antenna and memory (**central processing unit CPU**), the processor comprising: an address generation unit (**CPU having address generation unit generating addresses**); and a memory management unit configured to receive a virtual address from the address generation unit and provide a corresponding physical address (**memory management unit (MMU) for translating virtual addresses to physical addresses; Col. 3, Lines 48-59**),

the memory management unit comprising: a storage containing one or more virtual address-to-physical address translations (**translation look aside buffer (TLB) encaching translated entries and providing translation to associated access control logic**); conversion logic to generate a modified virtual address from the virtual address (**access control logic for the translation of virtual addresses into modified virtual addresses**); and a page table walk unit configured to convert the modified virtual address into the corresponding physical address (**translation table walking logic providing translation to the associated access control logic**) [Col. 3, Lines 48-66; Col. 17, Lines 25-42].

North fails to specifically teach generating a modified virtual address from the virtual address if a virtual address-to-physical address translation for the virtual address

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does not exist in the storage. However, Day discloses memory management for real-time application wherein (a) the mapping from a virtual address translation to real memory address is cached in TLB (translation lookaside buffer) 108, TLB 108 being a special cache used for dynamically storing sets of PTEs (page table entries) fast access, (b) a hardware and/or software page replacement algorithm (PRA) 110 is also used to assist the TLB when there is a TLB miss and a PTE (page table entry) in the TLB has to be replaced with a new PTE (containing the missing page) from the page table 106; and (c) a TLB locking mechanism 112 interacts with the TLB 108 and PRA 110 for improving the memory management mechanism 100 for real-time applications when a TLB miss occurs [Par. 0017-0018; 006-007]. Therefore it would have been obvious to one of ordinary skill in the art to generate modified virtual address if the virtual address-to-physical address translation does not exist, as taught by Day, in conjunction to the virtualization as taught by North because the result would have eliminated software reloads as well as hardware reloads of the TLB which can be fairly costly in terms of performance. Day discloses that reload as a result of TLB miss would require reading PTEs from the main memory and looking for a match, therefore taking three misses to find a match [par, 0007].

With respect to claim 2, North discloses the memory management unit wherein the conversion logic is configured to replace one or more bits of the virtual address with a process identifier if the one or more bits comprises a predetermined value [Col. 17, Lines 45-50]; Day additionally teach given the value of some field(s), a hardware

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mechanism in an associative memory searches all the records and returns the record whose field contains the given value, given the VPN 102A, a hardware mechanism in the TLB 108 searches all PTEs in the TLB and returns the PFN 104A, provided that there is no TLB miss {Par. 0019}.

With respect to claim 3, North discloses the memory management unit wherein the predetermined value is zero [Col. 4, Lines 44-51; Col. 19, Lines 4-15].

With respect to claim 4, North discloses the management unit is configured to receive the virtual address from an arithmetic logic unit [Col. 4, Lines 44-51; Col. 19, Lines 4-15]..

With respect to claim 5, North discloses the memory management unit wherein the memory management unit is configured to receive the virtual address from an incrementor [Col. 4, Lines 44-51; Col. 19, Lines 4-15].

With respect to claims 6-7, North discloses the memory management wherein the virtual address comprises an instruction address, a virtual address [Col. 12, Lines 13-19].

With respect to claims 8-9, North discloses the memory management unit wherein the one or more virtual address-to-physical address translations are invalidated upon updates to a process identifier [Col. 3, Lines 53-65; Col. 17, Lines 45-58].

With respect to claims 9-10, North discloses the memory management unit; wherein the storage is configured to store one or more most recently generated virtual address-to-physical address translations [Col. 3, Lines 53-65].

With respect to claims 12-16 and 18-24 which correspond to claims 2-10, North discloses the invention as addressed in the claim analysis with respect to claims 2-10 above.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,907,600 teaches content of active translation data structure to be modified to conform to content of guest translation data structure where all entries in the active translation data structure that do not match corresponding entries in the guest translation data structure are modified.


6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Michel Bataille whose telephone number is (571) 272-4178. The examiner can normally be reached on Mon, Tue-Fri (8:00A to 5:30P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Pierre-Michel Bataille  
Primary Examiner  
Art Unit 2186

**PIERRE BATAILLE  
PRIMARY EXAMINER**